

HYBRID ARTS, INC. by ROBERT MOORE DEC 16, 2023

TIMELINE BRIEF

1975 – The Evergreen State College (TESC) - Robert Moore as student starts using the company name Hybrid Arts to get FREE STUFF from Intel & others, builds Intel 4004 portable computer and "Hybrid Synthesizer", presents College Paper at AES 1976. Goal is to replace tape recorders with computers.

Meets Frank Foster (fellow student)

1978 – Robert Abel Associates - Star Trek – Robert builds B-BOX Mitchel Box / Camera tracking cam automation, followed by Mid-Ocean MP

Meets Paul Rother (Robert, Frank and Paul all work at Abel)

1979 – 1983 - Robert works at Village Recorders, Kendun/Sierra, Dawnbreaker (Chief Engineer), Cherokee, Baby'O, Motown then to HAI.

1982 - Cherokee Recording Studios

Meets Alan Hart (both are Engineers), Alan funds HAI Startup \$20K cash!

1983 April – Robert intention is to replace analog tape recorders with MIDI Recorders, with sync to tape for multitrack sessions, owned a Prophet 600 MIDI Synth for that purpose and specifies features of MIDITrack and MIDIMate. Paul specifies development, ATARI 800, FORTH and MIDIMate - Paul codes MIDITrack, Robert codes MIDIPatch 600 and prototypes MIDIMate hardware.

WORLD FIRST - MIDI DEMONSTRATION

1983 May 17 - First MIDI Users Group (MUG) Conference, San Francisco

Robert Demos ALPHA MIDITrack, MIDIMate, MIDIPatch 600 (Light Pen version)
The Founders of MUG (later renamed to IMA, International MIDI Association), Brian Vincik (HP) and John Bowen (Sequential Circuits) asked us to be there, they were excited to see the first use of MIDI to personal computer.

1983 Oct - Goodman Music,

Robert Demos BETA MIDITrack, MIDIMate (#1 PCB) & MIDIPatch 600

Ray Parker Jr buys that unit to do "Ghost Busters" Music Soundtrack.

1983 Nov - Motown

First Hybrid Arts Flyer photographed and produced by Frank.

1984 January 20-22, Exhibitor - First HAI NAMM - (I think we were a guest of IMA in their booth (MUG changed name to IMA, later to MMA))

1984 Early - HA Incorporates, Hybrid Arts, Inc., Robert and Alan begin mass producing MIDIMate hardware & MIDITrack Floppy Discs, first 200 units are hand made, Frank produces packaging and marketing.

1984 August - HAI begins shipping official MIDITrack II and first 6 products and HAIBBS – MIDITrack, MIDIMate, MIDIPatch (for DX7), Session Sounds (synth patches), Session Player (music sequences), MIDICom (musician friendly telecom software) and the HAIBBS, soon followed by GenPatch (all synths) and GenEdit (editor/librarian). International distribution was starting at this time. Hybrid Arts was reviewed with highest regard in most publications worldwide!

1985 SMPTEmate / SMPTETrack introduced for Atari ST and many other products, the company exploded with many new products.

1986 June 15-17 - ADAP Introduced at Chicago NAMM

1986 Included appearances on PBS Computer Chronicles and other shows.

STARTUP & PARTNER INTRODUCTIONS

A very Alpha version of MIDITrack, MIDIPatch 600 (using a Light Pen) and the very first hand wired MIDIMate was first shown in San Francisco, May 17, 1983 at the "First Annual MIDI Interface Users Conference" hosted by MIDI Users Group (MUG) (later renamed International MIDI Association (IMA)), by invite from Brian Vincik (HP) and John Bowen (Sequential Circuits) from early support calls by Robert Moore. They were excited to see the first use of MIDI between a MIDI Synthesizer and a personal computer, using an Atari 800 and Sequential Circuits Prophet 600 (John Bowen was on the team that designed the Prophet 600). HP was interested because they saw real applications for MIDI and use with computers (MIDI is an Optoisolated connection).

A Beta MIDITrack/MIDIMate was next demonstrated on October 1983 at the Goodman Music Showcase, a large NAMM like event held at a hotel in Burbank. At that show Ray Parker Jr. bought that system to use on the Feature Film Music Soundtrack, "Ghost Busters"... the first Hybrid Arts sale!

Hybrid Arts, Inc., Incorporated in 1984 and started with 4 equal partners;

Robert Moore – President, Product Ideas, Programmer, Investor (\$20+K Credit Card Debt), MIDIPatch, Session Player, Session Sounds, MidiCom, HAI BBS, MIDIMate hardware and package production.

Paul Rother – MidiTrack Programmer, MidiMate initial spec.

Alan Hart – First investor (\$20K Cash) / Head of Accounting, Finance, Banking, Manufacturing, Shipping and more (Alan and Robert shared finance oversight, both signatures were required on ALL banking, orders and etc.)

Frank Foster – Marketing, Advertising, Publishing, Graphics, Photographer, Owners Manuals and more.

Initially Hybrid Arts, Inc. offered 6 products and online services and began shipping product in 1984;

- 1) MIDIMate** - Serial & Analog Sync interface to Atari 8 bit computer (800, XL, XE)
- 2) MIDITrack** - MIDI MultiTrack Recorder & External Sync – NOT a "sequencer"
- 3) Session Sounds** - Patch Libraries for Yamaha DX7 and Casio CZ101
- 4) Session Player** - Library of MIDI Tracks so musicians could load music into MidiTrack for performance and study

- 5) **MIDICom** – Musician Friendly telecom software, bundled with the Atari Modem
- 6) **Hybrid Arts BBS** – Atari based Bulletin Board Service connected over phone modem to the world that contained MIDI Songs, Sounds, Ideas and Information (later duplicated on GE's GENie network, MIDI/WorldMusic Roundtable)

FOUNDERS MEET - PRE HAI **(you all need to provide your details?)**

Robert was employed by the The Evergreen State College (TESC) Computer Science Department and became a Film, Music, Technology Student, spending half his time in the recording studio and the rest of his time designing MicroComputers systems for Electronic Music and other Applications. His third year there he was also Faculty at a neighboring college teaching 3 courses; Microcomputer Systems Design, Digital Electronics and Music Physics & Engineering.

At TESC Robert met Frank Foster who was a Filmmaker and Produced the Evergreen Film Festival.

Years later Robert met Paul Rother at Robert Able & Associates on the Feature Film "Star Trek: The Motion Picture", where Frank as Filmmaker, Paul as Programmer/Hardware Developer all worked. Robert designed a stand-alone Tracking Camera Automation System (simple logic array, until computer was to replace it) and built the same system for MidOcean Motion Pictures.

Robert met Alan Hart when they both worked at Cherokee Recording Studios in Hollywood, where they were both Engineers on major recording projects, including Paul McCartney/Wings, Michael Jackson, Duran Duran, Cheap Trick, DEVO, Oingo Boingo, Tom Petty, Rod Stewart and more.

HYBRID ARTS STARTED AS A 1975 COLLEGE PROJECT

Hybrid Arts started as part of my (Robert Moore) 1975 "Individual Learning Contract" at The Evergreen State College (TESC), which I presented and published the final paper to the world at the 54th AES Convention in Los Angeles, May 1976 entitled "A Hybrid-Synthesizer". I started using the company name Hybrid Arts at TESC in letters to Intel, National Semiconductor, Fairchild and others to get Free Stuff, including all the parts to build MicroComputer systems

using Intel 4004, 8008, 8080, Zilog Z80 and other MicroProcessors. My first MicroComputer was a very portable “Hybrid Synthesizer”, powered by 2, 9 Volt DC Batteries and built around the Intel 4004 and 4, 555 Timer Chips (4 voice synthesizer). It had a great sound, but was never brought to market, working with products like the Fairchild F8 eval board, the IMSAI 8080 and etc. kind of made me think my system would not compete.

Other products developed include a Digital Metronome (TESC bought 2) and automated fireworks system for Red Devil Fireworks (4004 Microcomputer to VMOS Heat Matrix).

THE GOAL OF HYBRID ARTS

My goal was to replace Analog Recorders with completely Digital Computer Systems (not Sequencers, but full Digital Production Systems). I had a LOT of experience in my childhood, through College with analog music tape recorders and computers. My first Computer Program as a teenager was a Music Sequencer written in FORTAN and using an IBM 1620, the memory cores give off radio signals that can be tuned in and data rate transfers generates a tone! My first real job was at Boeing as an Engineer Aide, where on my own time I coded in FORTAN computer models to calculate downwash to the 7X7 Tail Section. Took a leave from Boeing to go to TESC.

THE MOVE TO LA

I moved to LA in 1978 and first started working at Robert Able Associates / “Star Trek – The Motion Picture”, with Frank and Paul, followed by working at the best recording studios in the world as Recording Engineer and Tech (sometimes Producer) including The Village Recorders, Kendun Recorders/Sierra Audio, Dawnbreaker Studios (Seals & Crofts as Chief Tech), Cherokee Recording Studios, Baby’O Recorders... with virtually all of the biggest pop/rock music acts of the late 70’s to early 80’s.

My last studio gig was at Motown Hollywood (next door to Warner Hollywood) in 1982-83 involved in lots of projects and where I also spent a lot of time at Berry Gordy’s house in Bel Air making his Rhodes Chroma Polaris and Apple II music sequencer system work, with it’s giant PCB connector, I knew there had to be a better interface! The very first Hybrid Arts, 1 page MidiMate, MidiTrack Ad Flyer was photographed by Frank Foster at Motown, there is an Ampex ATR124 in the background! The MidiTrack II Ad Flyer following that one was named BEYOND TAPE and showed a fading multitrack recorder in the background, this was for the Official Product Release!!

HAI STARTS - FIRST MIDI KEYBOARD, FUNDING & ATARI 800

I heard about the first MIDI Keyboard, the Sequential Circuits, Prophet 600 in 1983 and bought one on April 1983, with the intent to develop needed hardware and software using the Apple II Computer.

I told a good friend of mine, Alan Hart, my plans to develop my Tapeless Digital Music Recorder. Alan offered \$20K to fund the startup and wanted to be involved.

After that I spoke to Paul Rother and told him what I wanted to do and to my surprise, he said that sounds like fun, he would like to work with me on that. It's Paul who suggested using the Atari 800, 8 bit computer and the computer language FORTH. He pointed out the advantages of the Atari over the Apple and IBM PC computers, Apple II had timing and memory management problems and Atari managed memory FAR better than the IBM PC.

I spec'd the MIDITrack features and named it, Paul spec'd the MIDIMate hardware interface and I prototyped it. I arranged all manufacturing of the MIDIMate parts, boxes, paint jobs, PCB production and wave solder parts install, not including final assembly. I and Alan Hart hand made the first 200 units! After quickly selling the first 200 units we could afford to have all manufacturing done by outside contractors, eventually going to China for 10K piece orders (yes, we sold tens of thousands of units worldwide).

It was at this time that I asked Frank Foster to join as Marketing Director, which he did, we all formed the HAI partnership and incorporated. Frank produced all graphics and ad elements and managed advertising. Frank also brought MIDIMaze, a fun Atari ST shooter game over a MIDI network, I think the first of its kind? A company in Seattle, Xanth Software developed the game, we distributed, unfortunately it was hacked and copies were freely distributed.

COMPANY ROLES

Robert Moore – President / Product Ideas (MidiTrack and MidiMate initial Features Spec of MIDI Recorder, use of Tape Sync to Analog MultiTrack Audio and Video Recorders, general idea being a MultiTrack MIDI Recorder that replaces MultiTrack Analog/Digital Tape Recorders and that it can Sync to MultiTrack Tape Recorders and Video) and hardware including MidiMate hardware prototype and production, First coding of MidiPatch, Product ideas including MidiTrack (MIDI Recorder), MidiMate (MIDI Interface to Atari Computer that includes, MIDI Serial Data interface and Analog Clock Interface to Analog

Recorders for Sync to Tap), MidiPatch (MIDI Editor Librarian), Session Player (MIDI Sequences), Session Sounds (MIDI Synthesizer Patches), MidiCom (Musician Friendly Dial-Up Communications Software – The Future of MIDI) and HAIBBS (Hybrid Arts, Inc. Bulletin Board Service and local dial-up server for Sharing Songs, Sounds, Ideas and Information). (The idea was to develop as many products as possible on company introduction to show history and that the company is not small, i.e. worthy of buying from. I thought if we only had a single product, people would be less likely to buy from us.)

Paul Rother – MidiTrack Programmer, MidiMate initial spec (UART to Atari 800, Analog Tape Sync I/O)

Alan Hart – First investor / Head of Accounting, Finance, Banking, Manufacturing and more.

Frank Foster – Marketing, Advertising, Publishing, Graphics, Photographer, Owners Manuals and more.

There was another essential programmer at Hybrid Arts, Inc. who updated MidiTrack to become MidiTrack II, who's name is Stefan Daystrom. "MidiTrack II" was the first official release of MidiTrack.

AND THIS IS ONLY THE 8 BIT PRODUCTS

Hybrid Arts, Inc. exploded with many new products with the Atari ST. With the Atari ST, Hybrid Arts, Inc. went on to the next level of Full Digital Tapeless Recording Technology... easily 5 years ahead of any competition AND including the FIRST AI (Artificial Intelligence) software for the world and Consumer to Professional Musicians with DX-Android, CZ-Android!

ADAP I, ADAP II, SmpteTrack, SmpteMate,

SIDE NOTES;

- 1) I (Robert Moore) programmed the first version of MIDIPatch 600 to use a Light Pen to program the Sequential Circuits Prophet 600, by touching the screen of a raster monitor with the light pen, you could flip switches, turn knobs and move patches to/from the Prophet 600. This version of MIDIPatch was never released and was a full Prophet 600 patch Editor and Librarian, where the official MIDIPatch version released was only a librarian to save and upload MIDI patches to the Yamaha DX7.
- 2) ALSO MIDIPatch 600 displayed the full graphics, all knobs and switches of the Sequential Circuits Prophet 600 on the Raster Monitor, using a custom FONT.
- 3) In a special offering, in a joint venture between Hybrid Arts, Atari and Kawai, Kawai offered a complete system bundle of Kawai K3 Music Synthesizer, Atari Computer, MidiTrack, MidiMate and Kawai K3 Wave Edit (HAI software custom designed for the K3), which Kawai sold through their stores and channels.
- 4) At the 1986 Chicago NAMM show, Hybrid Arts, Inc. surprised and freaked out the competition with the introduction of the ADAP! This low cost system was not supposed to show up for at least another 5 years. Ranged in price for around \$3,000 to \$10,000, compared to the competition at the time which cost \$Hundreds of Thousands\$, like the Fairlight and Lexicon planned a very expensive DAW product, but canned it.



Sequential Circuits Prophet 600 – Look at the Layout, Knobs & Switches here and the next image on the monitor on the right, that monitor is not a graphic monitor, the graphics were accomplished by a custom set of FONTS, 4 characters made up a knob, or switch.

I N T R O D U C I N G

The MIDIMATE™ Series



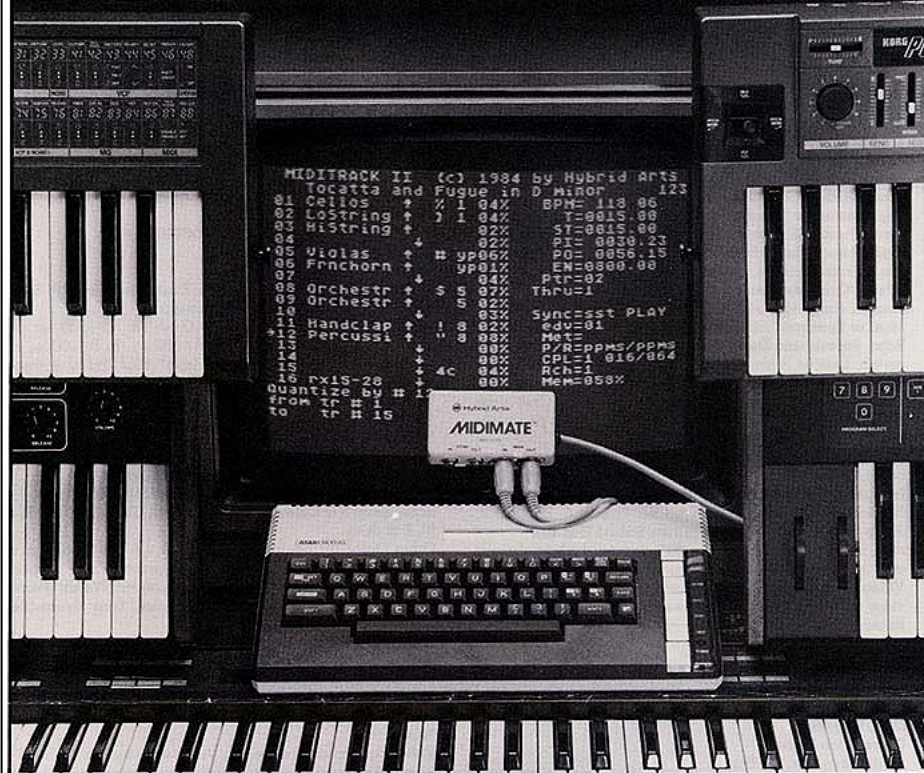
Professional MIDI™ Products

FROM



First BETA versions of MIDITrack and MIDIPatch600 – Notice the small monitor on the right shows the full graphics of a Sequential Circuits Prophet 600 and this version was a full Editor/Librarian and used a Light Pen to program the Prophet 600 by touching the Light Pen to the monitor (MIDIPatch600 was never released, but replaced with MIDIPatch for the DX7. This photo was taken at Motown, behind is an AMPEX ATR-124, 24 Track recorder - \$125+K. The MIDIMate is the final product, but MIDITrack and MIDIPatch weren't completed yet. Photo taken Nov. 1983, to begin promotion.

TOTAL CONTROL



MIDITRACK II™

The 16 Track MIDI Recorder, MIDI Remote Control, Synchronizer with: Locate/Punch In-Out/End, Auto Correct, Sync to all clocks & tape. More features than the \$6,000 machines, THE BEST MIDI RECORDER AVAILABLE AT ANY PRICE! (Under \$600 with computer).

MIDIPATCH™ for DX7

Save and recall, 512 patches per disk side.

SESSION SOUNDS™

Original sounds created by working studio musicians. Available for DX7 and CZ101.

SESSION PLAYER™

Prerecorded tracks for your use or study (works with MIDITRACK II).

MIDICOM™

With this, a worldwide network of musicians are exchanging their DX7 patches & MIDITRACK II songs by phone.

The Hybrid Arts free Bulletin Board Service (BBS) is now on line, with DX7 patches, MIDI information, etc. (213) 826-4288.



Hybrid Arts™

PO Box 480845 Los Angeles, CA 90048 (818) 508-7443

Circle #160 on Reader Service Card

MAY 1985

MIX VOL. 9, NO. 5

177

The official release version of MIDITrack II, products and Ad - 1985

BEYOND TAPE



Let the power of MIDI take you *Beyond Tape* to first generation quality every playback. Then when you must go to a second generation recorder, MIDITrack will sync to tape. In fact it does just about everything. Before you buy any MIDI software, compare it against this list of features.

MIDITRACK III

Specifications

Midi Recording Features:

- ☐ Works with all MIDI machines regardless of Manufacturer.
- ☐ Note capacity of 10,500 notes, or 21,000 MIDI events.
- ☐ 16 polyphonic, multifunction tracks.
- ☐ Overdub capability on any track.
- ☐ Single screen display with all parameters instantly readable.
- ☐ Song and tracks can be named.
- ☐ Real time or step edit recording.
- ☐ Punch in/punch out capability with auto-locate and preroll/post roll. (including Song Position Pointer.)
- ☐ Single keystroke commands for quick access to tracks and functions.
- ☐ Able to MOVE (Copy and Paste) track sections to other parts of song.
- ☐ Able to copy and loop tracks without losing the capability to punch in/out and customize the looped tracks.
- ☐ Looping and chaining of tracks without using additional memory. A two command instruction set (JUMP to track # and RETURN), which is easy to use and powerful, without the limitations present in other looping systems.
- ☐ 16 MIDI channels selectable on any track, at any time.
- ☐ Velocity encoding. Allows velocity to be set, or to raise or lower relative velocity. Even reassignment of velocity for automated mixing.
- ☐ Built-in digital delay. Allows any track (or any section) to be copied, prelayed or delayed by any increment, velocity adjusted, and recombined.
- ☐ Alterable note duration.
- ☐ Transpose up or down 60/9 steps or 5 octaves.

- ☐ Track combining retains all information of the original tracks.
- ☐ EXTRACT command allows the uncombining of tracks.
- ☐ Visual audio metronome.
- ☐ Real time mute and solo of tracks, any combination.
- ☐ Quantize or AutoCorrect that retains note duration with 120 variations of correction. Corrects after record with original remaining unaffected.
- ☐ All editing is nondestructive with option to save new version to same or alternate track.
- ☐ Variable tempo, rate 2 to 750 beats per minute.
- ☐ Programmable Tempo changes, smooth ramp up/down, etc. (affects all clocks out.)
- ☐ Records the full MIDI spec including all program changes, pitch wheel, plus all 126 MIDI controllers (mod wheel, breath controller, sustain pedal, volume for automated mix, etc.) With the ability to enable and disable on both record and playback.
- ☐ Transmits and responds to MIDI start/stop/continue commands.
- ☐ 3 registers for tempo save/recall for quick access.
- ☐ 3 registers for track mute save/recall for quick access.
- ☐ Displays note value played at any time.

Midi Synchronization Features:

- ☐ Sync to tape with or without drum machine.
- ☐ Input is sensitive enough to allow a condenser microphone to trigger events, allowing stepping of MIDI/III by kick drum or other audio source.
- ☐ Master or slave, internal/external sync.
- ☐ MIDI clock sync.

- ☐ Locks to all drum machines even the low cost (one clock per beat) machines.
- ☐ Simultaneous outputs (while receiving external or internal sync): MIDI clock, TTL clock, beat, Roland sync (or clock and start/stop) and audio clock.
- ☐ Outputs Song Position Pointer (for locating drum boxes and other MIDI/non-MIDI machines).

Midi Remote Control Features:

- ☐ MIDI thru, full duplex echo. Allows master keyboard to be routed through any of the 16 MIDI channels to other synths. Great for performance work.
- ☐ Allows selection of poly/omni/mono mode, tune request, from any MIDI machine from the computer keyboard.
- ☐ Remotely starts and stops both MIDI and non-MIDI drum machines and keyboards.
- ☐ Patch selection from computer or master synth.

Real-time Features:

- (The following can be used while in Record or Playback)
- ☐ Mute and solo of tracks.
- ☐ Tempo adjust.
- ☐ Live Punch in/punch out.
- ☐ Function filter enable/disable.
- ☐ MIDI channel assignment.
- ☐ Patch Selection.
- ☐ Sync mode selection.
- ☐ Metronome on/off.
- ☐ All the remote control features listed above.



Hybrid Arts, Inc.

System includes MidMate interface, MIDITrack software, 2 MIDI cables, and User's Manual. \$374.00. (Full system with 128K computer and disk drive \$699.00.)

The Hybrid Arts free Bulletin Board Service (BBS) is on line with DXICZ patches, songs and MIDI information. (213) 826-4288

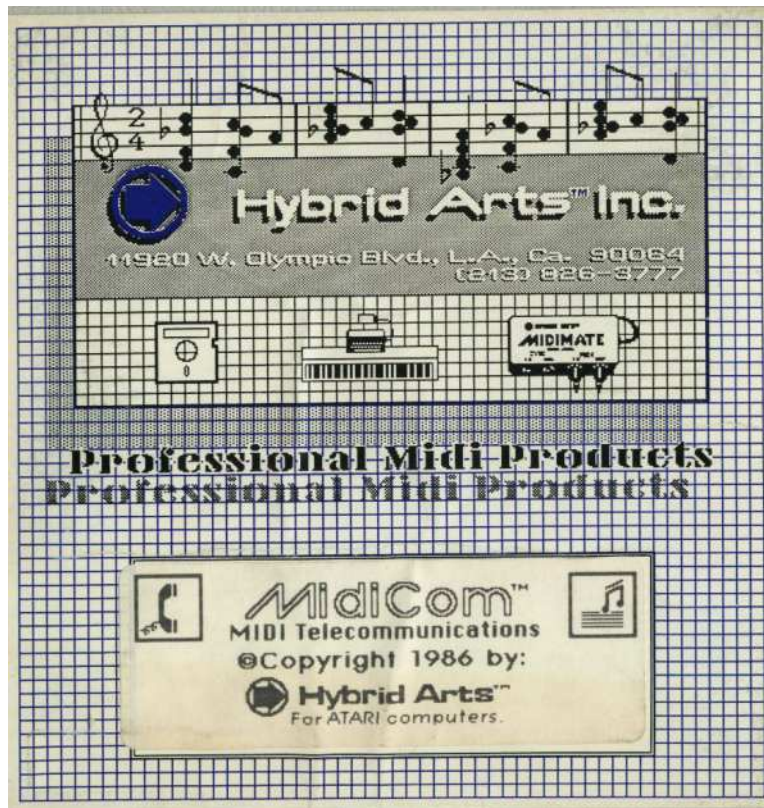
For a free catalog with information and prices on our professional MIDI products for the ATARI, Commodore and IBM, call or write us at:

Hybrid Arts Inc. 11920 W. Olympic Blvd., LA, CA. 90064 Main Office: (213) 826-3777 • Computer: (213) 826-4288

The official release version of MIDITrack II, more features list and Ad - 1985



MIDIMate package. The MIDIMate was sold separately and customers would select what software they wanted, typically MIDITrack and MIDIPatch.



The Future of MIDI

Telecommunications

The fact that MIDI is a digital standard allows it to be transmitted via modem through the phone lines. Although MIDI Librarian and sequencing is becoming quite popular, MIDI telecommunications is an area that is only just now beginning to be explored. The day has arrived where a session player in New York can put the finishing touches on a soundtrack for a client in L.A. without ever leaving the home MIDI studio. Both MIDI sequencing files and keyboard patch sounds can be transmitted over phone lines in this way. To help prepare dealers and musicians for this new challenge, Hybrid Arts has a 24 hours computer Bulletin Board Service (BBS).

MIDI World Network

The Hybrid Arts BBS is devoted exclusively to MIDI. On it you will find a wealth of up to date information on MIDI as well as free patches for the DX-7, CZ-101 and other synths.

Authorized Hybrid Arts dealers now have the privilege of getting special passwords that will allow access to classified information on the system. This will make up to date information on new products and dealer pricing immediately available. It will also allow for immediate electronic mail for product orders, point of purchase software demos and quick answers to any problems that might arise.

MidiCom™

In order to make the world of computer telecommunications a little easier for the average musician, Hybrid Arts wrote a special program called MidiCom. The software allows easy communication of MIDI files, as well as the text features found in other telecommunication packages. MidiCom is affordably priced at \$49.49. It can be bundled conveniently with the ATARI XM301 modem for an additional \$49.95.

Dealer Report Page 12

WAY AHEAD OF IT'S TIME... BEFORE THE INTERNET! Hybrid Arts, Inc. would often be bundled MIDiCom with the Atari Modem so muscians could dial-up the Hybrid Arts, Inc. Bulletin Board Service to down Songs, Sounds and Ideas. The HAIBBS

opened in 1984. This would include patches for MIDI Synthesizer, MIDI Music Sequences, so owners could download a library of songs and patches for a set to perform live, if they wanted. PLUS regular "Blog Posts" of activities at HAI would be announced here. This BBS was duplicated at GE's GENie consumer network, called "MIDI/WorldMusic Roundtable", host by Robert Moore and virtually all of the MIDI companies on the planet – this Roundtable was the #1 Most Popular Roundtable on GENie!

GENie™ LiveWire

Volume No. 1, October/November 1987, Issue 10



SPOTLIGHT ON SOFTWARE LIBRARIES

No matter what type of computer you have . . . and no matter what type of software you are looking for, chances are you can find what you need on GENie. There are literally thousands of public domain and shareware programs available for you to download and use. From games to word processing . . . from utilities to graphics, it's all here.

The software on GENie is primarily in the **Software Libraries** of the various RoundTables. If you are a novice, the Sysops and other users are there with help and advice on which is the best software and how to download it. This month, we are taking a quick look at some of the top Software Libraries on GENie. But remember, the files mentioned represent only a tiny part of the software available in the various Libraries.

One of the great features of the Libraries is that new versions of software are often uploaded to replace older versions and the file number and/or name of the file may change slightly. So if any of the files mentioned don't seem to be in the library when you try to download them, use the software library "search" option with the first part of the file name to see if a newer version has been uploaded.

The IBM PC RoundTable Software Library is one of the largest and fastest growing software libraries on GENie with over 3400 files available for downloading.

No matter what kind of software you are looking for, you should have no trouble finding it in the IBM Software Library. Are you a programmer? Take a look at MOD2COMP.ZOO (a Modula-2 compiler), or AUGUSTA.ZOO (an ADA™ subset compiler), or A86307A.ARC, A86307B.ARC, and A86307C.ARC (a shareware assembler that's received rave reviews).

Interested in desk-top publishing? How about CTDESK27.ARC, a good package to start with.

"There are literally thousands of public domain and shareware programs available for you to download."

Want to increase your productivity by making your PC easier to use? Take a look at SR224.ARC, the shareware Still River Shell that makes working on your computer a breeze. If you're into communications, as many GENie subscribers are, we've got a number of excellent shareware communications packages available, including the very popular Procomm (PRCM242.ARC), DSZ, and GT-Powercomm, to name just a few.

Trying to keep track of your stock portfolio? How about PFROI224.ARC, a package to compute the return on investment for your stock portfolio. Enough business you say? How about LARN12B.ARC, a public domain Adventure-type game that changes every time you play it.

(continued on page 10)



NEWS FLASHES

GENie announces the **MIDI/WorldMusic RoundTable** hosted by Robert Moore (MOORE.R) of Hybrid Arts, Inc. For a world-wide exchange of songs, sounds, ideas and information, type "MIDI" at any menu prompt.

Give it the old college try . . . The **GENie College Football Pool** is now available for this season. Play and win a GENie Usage Credit and vote for the Top 10 College Football Teams for 1987. Type "COLLEGE" at any menu prompt!

Like professional football better? The **NFL Football Pool** is now available for this season. Play and win a GENie Usage Credit. Type "NFL" at any menu prompt.

New . . . The **Writers' RoundTable!** This RT is designed to serve the needs of every writer. Whether you write novels or newspaper articles, you will find the Writers' RoundTable a useful place to network with other writers on business matters, to get feedback on your work, or to just communicate with writers with interests similar to your own. Type "WRITERS" at any menu prompt to access.

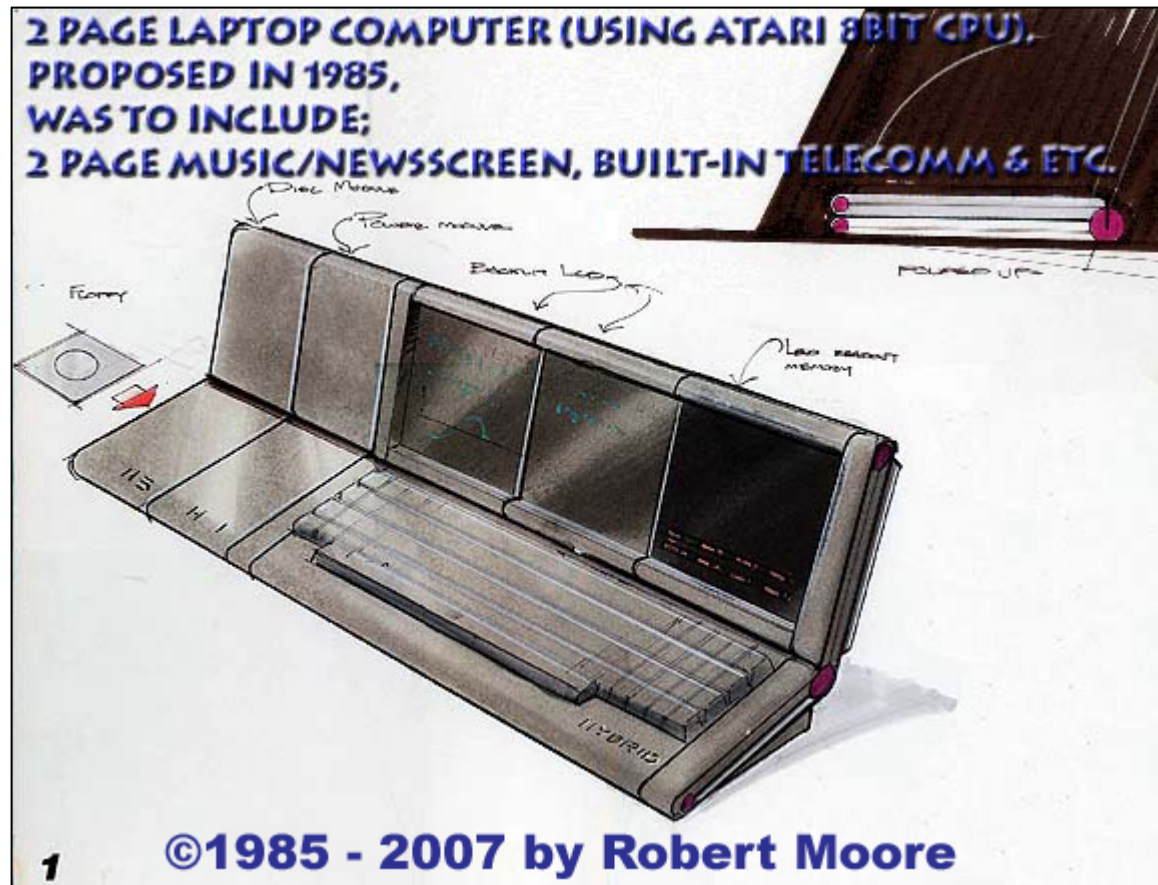
Now available to microcomputer enthusiasts: newsletter, interviews, and editorials by Jan Lewis. Jan's **COMPUTER INSIDER** offers product.

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GENie™



A product never started but conceptualized. A 2 page laptop, with modular disc drives, power supplies, built-in MIDI, Modem and more. The idea for 2 screens was to display full music charts, or multiple screens for scoring, and MIDI recorder up at the same time.

"This is a small selection of people who are currently earning their money with our ADAP Digital Systems "

Films

Otto der Außerfriesische
Honey I Shrunk the Kids
Born on the Fourth of July
Die Hard
Friday the 13th, Part 8
Day Dream
And God made woman
The Life and Times Of Marco Polo
The Android Theater
A World without Pity
The Honorary Consul (Mike Cain)
Les Nocturnes (Chopin)
Jean de Florette
Camille Claudel
La Planet Magique
Lunettes Noirs Pour Nuits Blanches

TV Productions

War of the Worlds
Cosby Show
ABC Movie of the Week
Tattingers
Falcon Crest
Terms of Engagement
Gentleman & Players
"Poirot"
Antenna
Geld oder Leben

Commercials

Converse/Lakers
Colgate
Ucar
Langnese Eiscreme
Telefunken

Records

Mötley Crue
Ice Tea
Natalie Cole
David Bowie
Iggy Pop
Jive Bunny and the Mastermixers
Accept
Channel 5 "Channel 5"

Studios

Soundeluxe
Todd AO/Glen Glenn Sound
Paramount Pictures
Paramount Studios
Twentieth Century Fox
Bavaria Film München
Copa Film
Digison
Euromedia
EAG-Video
Labeo-Films/Music
ADAC
Centre de Musique Information
Centre George Pompidou
Eroton
SAO Theater
Blue Nile Recording
CBS Television
National Children's Theater
Sitcom Services
Public Access Television
Star Struck Studios
National Radio Network
BBC
Video 22
Canal Plus Television

Elyson Radio

FR3-TV
ARD-TV
Bayerischer RundfunkRadio/TV
Westdeutscher Rundfunk (WDR)
ZDF-TV
ORF-TV
Vienna Sound Studios
Euromedia Television Production
Orinocco Studios
John Lumsden
Gerry Chater
The Music Suite
Castlesound Studios
Cue Sytems
TruSound Films
CMTB
Alberta Studios
SDRC
Hotline Studios
Dierks Studios
Pilot Studios
Off Beat Studio
Ralf Zang / Jule Neigel
Luis Rodriguez / Dieter Bohlen
Thomas Kuckuck / Otto Waalkes
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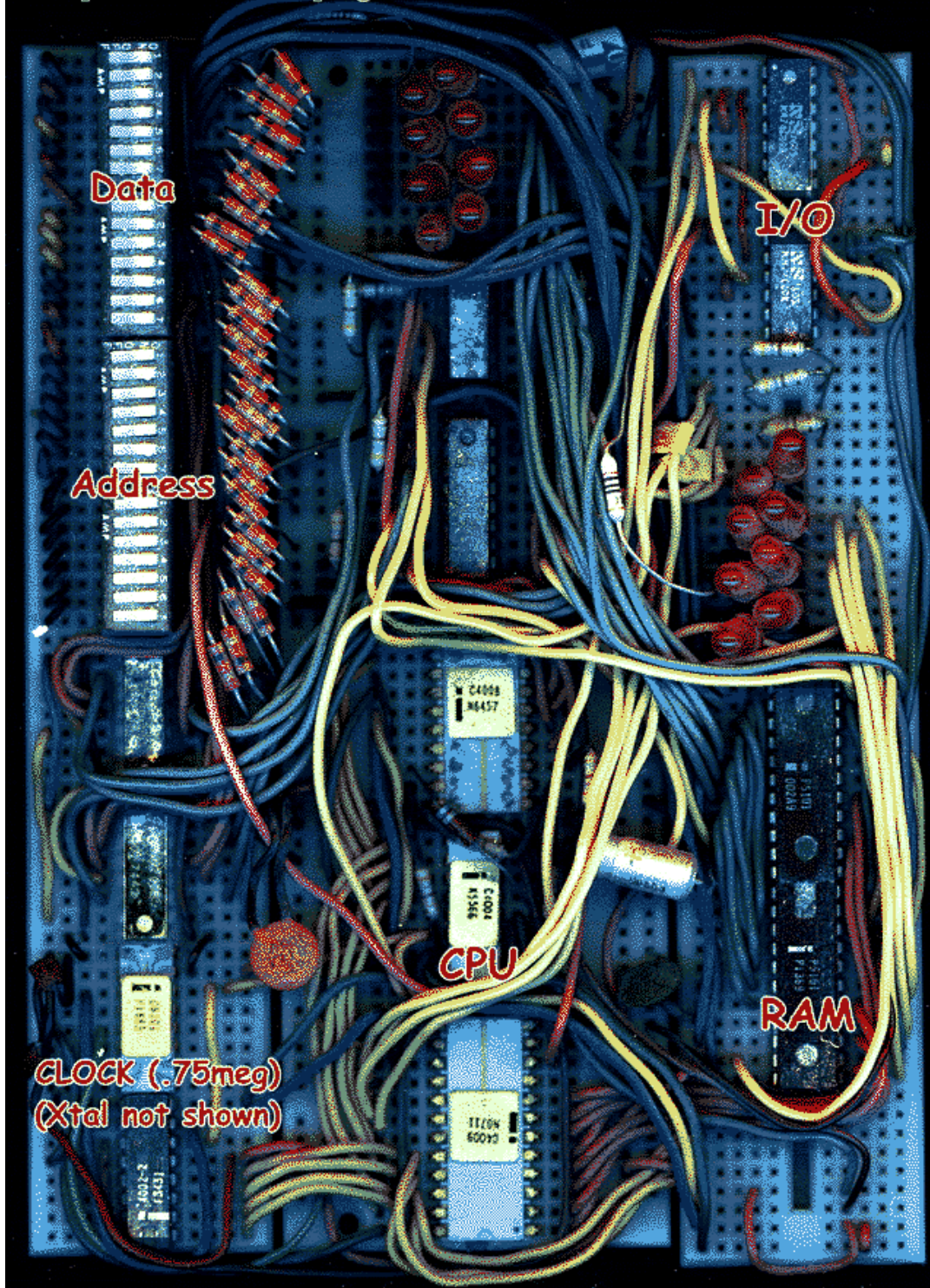
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My first MicroComputer. It was portable and worked on two 9 volt batteries. I used it to control my Music Synthesizers, automated fireworks, Laser & Computer Graphics. The Intel 4004 was introduced less than a year before this project. I later used 8008, 8080 and Z80.



A "HYBRID-SYNTHESIZER"

BY

Bob Moore
The Evergreen State College
Olympia, Washington 98501

PRESENTED AT THE
54th CONVENTION
MAY 4-7, 1976



AN AUDIO ENGINEERING SOCIETY PREPRINT

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Hybrid Arts started as part of 1975 "Individual Learning Contract" at The Evergreen State College (TESC), which presented and published final paper to the world at the 54th AES Convention in Los Angeles, May 1976 entitled "A Hybrid-Synthesizer". There were more than 500 people in the Audio Engineering Society (AES) audience. This is not the complete paper, which is 7 pages.

A "Hybrid-Synthesizer"
Author: Bob Moore
The Evergreen State College

Abstract:

This paper discusses a device which I have labeled a "Hybrid-Synthesizer". This system has the capability to change the tempo of predigitized music without changing pitch and the reverse, among many other digitized audio applications. An extremely portable prototype system that I have designed and built will be presented. The hybrid system consists of a microcomputer and synthesizer.

I. Introduction:

During the Winter quarter of 1975, I was involved in a learning contract at The Evergreen State College to study microprocessors, audio engineering, electronic music, math and physics. At the end of that quarter I had designed and built my first automated synthesizer, which consisted of a 4-bit parallel microprocessor, DAC, and a VCO. Since that time I have studied music theory and have been working with an 8-bit microprocessor. A result of my studying music theory was an introduction to four part harmony and figured bass and the desire to design and build a hybrid system that could generate four part harmony by first randomly generating the bass line and then generating the other three parts. There are, of course, an unlimited number of applications for such a system. You may already have a bass line that you would like to have harmonized, or possibly you would like to interface a keyboard to this system so that when a key is depressed the fundamental and harmonics for any instrument would be generated.

The system described in this paper consists of a parallel 4-bit microprocessor, 2 DAC's, 2 VCO's, 2 ADSR's, 2 VCF's and the software (program) to generate two parts of the desired four part harmony. I have had to limit this system to two voices because of the lack of funding.

II. The Digital Micro-Computer:

My final decisions for using a 4-bit microprocessor were that the range for each voice is limited to approximately sixteen tones, and each output port is 4-bits, allowing sixteen tones to be output. (By cascading two ports together enables you to have eight-bit ports.) By adjusting the frequency output of the VCO's you can have the desired voice ranges. My other reasons were that this particular microprocessor consumes less power than my 8-bit system, has more hardware flexibility (not software), and the 8-bit system is not yet complete

